U.S. Serial No. 10/781,389 (Attorney Dkt: HALB:001D1)
Art Unit: 1712; Examiner TUCKER, PHILIP C.

IN THE CLAIMS:

Please amend claims 1-6, 9, 10, 12, and 16 to read as indicated below.

I claim:

1. (Currently amended) A polymer based drilling fluid ~~additive~~ having a pH greater than 9, comprising an iron (II) based hydrogen sulphide scavenger chelated with a gluconate chelating agent which provides a stable complex with said iron at pH greater than ~~about~~ 9.

2. (Currently amended) The drilling fluid ~~additive~~ of claim 1 wherein said chelating agent ~~which~~ provides a stable complex with said iron at a pH of at least about 11.5.

3. (Currently amended) The drilling fluid ~~additive~~ of claim 1 wherein said chelating agent ~~which~~ provides said stability at subterranean formation temperatures.

4. (Currently amended) The drilling fluid ~~additive~~ of claim 1 wherein said chelating agent ~~which~~ provides said stability at temperatures ranging from ambient temperature to over 300 degrees Fahrenheit.

5. (Currently amended) The drilling fluid ~~additive~~ of claim 1 wherein said scavenger chelated with said chelating agent ~~which~~ provides improved resilience to the rheological properties of said fluid.

6. (Currently amended) In combination with a polymer based drilling mud comprising crosslinkable polymers delivered to a well during drilling operations through a subterranean zone containing hydrogen sulphide accumulations, ~~an~~ a biocompatible additive for decreasing hydrogen sulphide concentration in the mud, the additive comprising an effective amount of a

ferrous chelating agent mixed into the mud to reduce hydrogen sulphide concentration in the mud circulating in the well, wherein such additive fails to significantly cause crosslinking of said polymers and the pH of said mud and said additive is higher than about 11.

7. (Original) The additive of claim 6 wherein the iron in said ferrous chelating agent does not significantly ionize to a trivalent state in said mud.

8. (Original) The additive of claim 6 wherein said additive enhances the mud's ability to withstand well temperatures under shear.

9. (Currently amended) A polymer based drilling fluid with a pH greater than 9 comprising ferrous gluconate as a sulphide scavenger that reacts with any sulphide in said fluid and precipitates said sulphide as iron sulphide without substantially altering the rheological properties of said drilling fluid and without causing significant crosslinking of said polymer.

10. (Currently amended) A method of drilling a borehole in a subterranean formation containing hydrogen sulphide accumulation, said method comprising employing a biocompatible polymer based drilling fluid having a pH greater than 9.0 and adding to the drilling fluid a quantity of ferrous gluconate sufficient to react with hydrogen sulphide entering said fluid from said formation such that sulphide is precipitated.

11. (Original) The method of claim 10 wherein said drilling fluid has a pH in the range of about 10 to about 12.

12. (Currently amended) A method of drilling a borehole employing a polymer based drilling fluid having a pH greater than 9, said method comprising adding to the drilling fluid an additive comprising an iron (II) based hydrogen sulphide scavenger chelated with a gluconate chelating agent which provides a stable complex with said iron at said pH greater than 9 such that said sulphide is precipitated from said fluid as iron sulphide without damaging the rheological properties of said fluid.

13. (Original) The method of claim 12 wherein said drilling fluid additive provides a stable complex with said iron at a pH of at least about 10.5.

14. (Original) The method of claim 13 wherein said drilling fluid additive provides said stable complex at subterranean formation temperatures.

15. (Original) The method of claim 13 wherein said drilling fluid additive provides said stable complex at temperatures ranging from ambient temperature to over 300°F.

16. (Currently amended) The method of claim 12 wherein said drilling fluid additive enhances ~~precipitates sulphide without damaging~~ the rheological properties of the drilling fluid.